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L1: Entry 1 of 1

File: DWPI

Mar 7, 1995

DERWENT-ACC-NO: 1995-136047
DERWENT-WEEK: 199518
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TITLE: Air purificn. device for closed rooms - comprises UV lamp, highly pure titanium@ jacke
and ozone decomposition catalyst placed in air discharge part.

PATENT-ASSIGNEE:

ASSIGNEE

CODE

COSMO GIKEN KK

COSMN

KUMABE M

KUMAI

PRIORITY-DATA: 1993JP-0237143 (August 31, 1993)

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PATENT-FAMILY:

PUB-NO	PUB-DATE	LANGUAGE	PAGES	MAIN-IPC
<input type="checkbox"/> JP 07060058 A	March 7, 1995		004	B01D053/86

APPLICATION-DATA:

PUB-NO	APPL-DATE	APPL-NO	DESCRIPTOR
JP 07060058A	August 31, 1993	1993JP-0237143	

INT-CL (IPC): [A61 L 2/10](#); [A61 L 9/12](#); [B01 D 53/38](#); [B01 D 53/74](#); [B01 D 53/86](#)

ABSTRACTED-PUB-NO: JP 07060058A

BASIC-ABSTRACT:

The device comprises a UV-light lamp, a highly pure titanium jacket, and an ozone-decomposing catalyst which is placed in the air discharge part. The air flows through the spacing between the UV-light lamp and the titanium jacket.

A low-pressure mercury lamp (3) emitting UV-light with 185 and 254 nm main wavelengths was placed in a titanium jacket (2). An ozone-decomposing catalyst (5) was placed on air outlet (6). A thin TiO2 layer was formed on the inside surface of titanium jacket (2). The TiO2 layer worked as a photocatalyst decomposing alcohol and others.

USE/ADVANTAGE - For air purificn. in closed rooms. Bacteria and offensive odours can be removed in a cost effective manner.

CHOSEN-DRAWING: Dwg.1/4

TITLE-TERMS: AIR PURIFICATION DEVICE CLOSE ROOM COMPRISE ULTRAVIOLET LAMP HIGH PURE TITANIUM@
JACKET OZONE DECOMPOSE CATALYST PLACE AIR DISCHARGE PART

DERWENT-CLASS: D22 J01 P34

h e b b g e e c f c e b h g

e g e e g e

CPI-CODES: D09-B; J01-E03F;

SECONDARY-ACC-NO:

CPI Secondary Accession Numbers: C1995-062339

Non-CPI Secondary Accession Numbers: N1995-107254

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DESCRIPTION OF DRAWINGS

[Brief Description of the Drawings]

[Drawing 1] The outline perspective view of the air cleaner of this invention.

[Drawing 2] Drawing showing the deodorization effectiveness of the air cleaner of this invention.

[Drawing 3] Drawing showing the bactericidal effect of the air cleaner of this invention.

[Drawing 4] Drawing showing other examples of the deodorization effectiveness of the air cleaner of this invention.

[Description of Notations]

- 1 Body of Purifier
- 2 Titanium Metal of High Grade
- 3 Ultraviolet-Rays Electric-discharge Lamp
- 4 Fan
- 5 Ozonolysis Catalyst
- 6 Exhaust Port

[Translation done.]

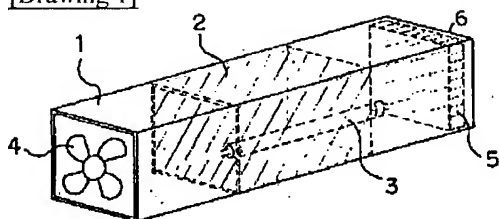
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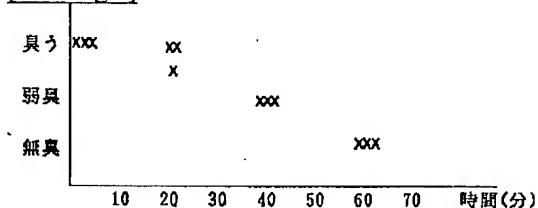
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DRAWINGS

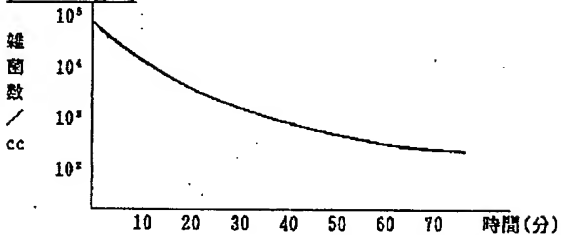
[Drawing 1]



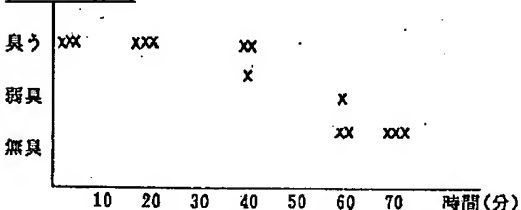
[Drawing 2]



[Drawing 3]



[Drawing 4]



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EXAMPLE

[Example] The example of this invention is explained about drawing 1 thru/or drawing 4 below. In drawing 1, the titanium metal of the high grade which 1 is a body of a purifier, and 2 is the interior of the body 1 of a purifier, and has been arranged around an ultraviolet-rays electric-discharge lamp, and 3 are ultraviolet-rays electric-discharge lamps, for example, use a 10W low-pressure mercury lamp. Moreover, this ultraviolet-rays electric-discharge lamp has made 185nm and 254nm the dominant wavelength. 4 is a fan who introduces air and defecates a sink and the polluted air for air on the surface of titanium metal. It is an exhaust port for discharging the ozonolysis catalyst which has arranged 5 in the discharge section of the body 1 of a purifier, and the air by which 6 was defecated, and the air defecated by the service space may be discharged outside as it is, and you may lead to other locations with a duct.

[0009] Next, the example of use of the air cleaner of this invention is explained. The air which became dirty when the above-mentioned air cleaner had been arranged to the interior of a room, such as a snack, is incorporated by the fan 4 inside the body 1 of a purifier, and flows the opening between titanium metal 2 and the ultraviolet-rays electric-discharge lamp 3. If the air which became dirty about the opening of titanium metal 2 and the ultraviolet-rays electric-discharge lamp 3 flows, the 185nm ultraviolet rays from the ultraviolet-rays electric-discharge lamp 3 change the oxygen in air into ozone, and ozone can oxidize titanium metal and can be deodorized for deodorization by the photocatalyst effectiveness, and ozone itself. Moreover, the saprophytic bacteria which float in air are sterilized by ultraviolet rays and ozone, and the number of bacilli decreases and is exhausted.

[0010] Moreover, as for the titanium metal of a high grade, an oxidizing quality is strong, easily in air, the exposure of ultraviolet rays and ozone is received, a front face changes to the thin film of a titanium dioxide, ultraviolet rays are irradiated, and deodorization is performed by the photocatalyst effectiveness. Furthermore, in order to deodorize by the ozonolysis catalyst 5 of the discharge section decomposing ozone, and changing it into oxygen, it combines with the above-mentioned photocatalyst and the high deodorization effectiveness is acquired. Moreover, by the photocatalyst effectiveness by the ultraviolet rays of the thin film on the front face of a titanium dioxide, sweat and the secrete from a living body in a snack etc., a cigarette, an alcoholic smell, etc. can be deodorized.

[0011] In addition, although the same effectiveness is acquired even if generate the titanium dioxide itself, it can be burned on surfaces of metal, such as iron and aluminum, it calcinates and it obtains a thin film, although there is also an outstanding thing in the photocatalyst effectiveness by the UV irradiation in the thin film on the front face of a titanium dioxide, a process becomes complicated and a thin film has the fault which exfoliates simply by vibration or friction. Furthermore, although independent or the approach of applying a titanium dioxide and platinum to coincidence is also considered in a titanium dioxide or platinum, as for a thin film, a process becomes complicated, a thin film exfoliates simply by vibration or friction, and platinum has a difficulty in it being very expensive and using it for a snack etc. economically.

[0012] Moreover, as an offensive odor component, ammonia, a trimethylamine, a hydrogen sulfide, methyl mercaptan, a methyl sulfide, diacid-ized methyl, aceto ARUDEHITO, styrene, etc. are known. These offensive odor components can raise the higher sterilization / deodorization effectiveness by combining the photocatalyst and ozonolysis catalyst concerning this invention. Effectiveness can be demonstrated when there is much air capacity processed when performing air cleaning especially for a short time.

[0013] Next, the experimental result of the air cleaner of above-mentioned this invention is explained. Drawing 2 arranges this invention air cleaner to the interior of a room of a snack, or the interior of a room of a toilet, and measures an indoor smell. First, when an indoor air capacity is 3 about 10m, a snack operates an air cleaner and measures a stinking thing change with the passage of time. About 1 hour after, it is deodorized about 100% so that this drawing 2 may show.

[0014] Drawing 4 shows the example of an experiment when setting the air cleaner of above-mentioned this invention to 3 indoor volume of about 200m. The result is deodorized like the case where it is shown in drawing 2 in about 1 hour. Moreover, the result of having measured the number of suspension saprophytic bacteria in air is shown in drawing 3. As shown in this drawing, about 1 hour after, about 99% was removed and the sterilization / deodorization effectiveness was checked also for the number of saprophytic bacteria.

[0015] Next, the result of having measured the gas concentration by the passage order of the air of an air cleaner is shown in Table 1 at the time of two sorts of concentration of ammonia gas. As shown in this table 1, decreasing air about 10% regardless of concentration, if an air cleaner is passed once is checked. Therefore, if circulation processing of the indoor air is carried out even in the large interior of a room, deodorization and sterilization will be attained by carrying out multiple-times passage.

[0016]

Table [] 1 before air cleaner passage after [air cleaner passage] ----- -- 1 60 ppm 55 ppm 2 60 ppm 53 ppm
3 11 ppm 9 ppm 4 8 ppm 7 ppm

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OPERATION

[Function] According to the above-mentioned air cleaner, since the oxidizing quality of titanium metal is strong and it is a high grade, the thin film of a titanium dioxide is generated on a wall front face by the oxygen in air. In addition, since an ultraviolet-rays electric-discharge lamp generates ultraviolet rays and ozone is also generated, a front face can be made to produce the thin film of a titanium dioxide easily according to an operation of ozone and titanium metal. If ultraviolet rays are irradiated by the thin film of this generated titanium dioxide, it can have a strong deodorization operation according to the photocatalyst effectiveness. By having adopted the ozone catalyst effectiveness of deodorizing while decomposing ozone furthermore and making it oxygen, it combines with the above-mentioned photocatalyst effectiveness, and there is the high deodorization effectiveness.

[0007] Moreover, according to the above-mentioned air cleaner, ultraviolet rays are irradiated by the air which flowed and the saprophytic bacteria in air are removed. Moreover, the sterilization / deodorization effectiveness is in ozone itself, and the above-mentioned photocatalyst effectiveness will become more effective. Since an ozonolysis catalyst is arranged in the discharge section of a purifier and it furthermore constitutes in it, it can decompose, before ozone harmful to the body is discharged outside.

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MEANS

[Means for Solving the Problem] This invention is considered as the next configuration, in order to solve the above-mentioned technical problem. That is, the titanium metal of a high grade is arranged around the electric-discharge lamp which emits ultraviolet rays, and air is passed to it in the opening between this electric-discharge lamp and titanium metal. Moreover, an ozonolysis catalyst is arranged in the discharge section of the body of a purifier, and it constitutes so that air may be purified.

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TECHNICAL PROBLEM

[Problem(s) to be Solved by the Invention] By the way, according to the structure which uses the above-mentioned deodorant and an aromatic, it is deodorized and there is temporarily an aroma scent, but there is no durability and there is little deodorization effectiveness. Moreover, according to the air cleaner using ozone, if the amount of ozone is made [many], the deodorization effectiveness will increase, but ozone is indoors full and the effect of the body on ozone poses a problem. Moreover, when the amount of ozone is lessened, the present condition is that the deodorization effectiveness runs short. According to the air cleaner which furthermore contained activated carbon, the deodorization effectiveness is small, the life of activated carbon is short, and a bactericidal effect has the fault from which there is nothing and the upper charcoal filter serves as a hotbed of saprophytic bacteria.

[0004] This invention is invented in view of the above-mentioned point, in order to purify indoor air, ultraviolet rays are used, and the sterilization / deodorization effectiveness is high with easy structure, and it aims at offering a durable air cleaner.

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EFFECT OF THE INVENTION

[Effect of the Invention] Since this invention was constituted so that the titanium metal of a high grade might be arranged, ultraviolet rays might be irradiated, and it might enable it to perform a photocatalyst around the electric-discharge lamp which emits ultraviolet rays and the ozone deodorization catalyst effectiveness could be acquired to it as mentioned above, it has the effectiveness that the economical sterilization / deodorization effectiveness can be acquired with easy structure.

[0018] Moreover, by generating the ultraviolet rays which generate ultraviolet rays from an ultraviolet-rays electric-discharge lamp, and generate ozone, a front face can produce the thin film of a titanium dioxide for titanium metal more easily, ozone can raise sterilization and deodorization, ozone itself has sterilization and deodorization further, and the sterilization / deodorization effectiveness becomes large.

[0019] Moreover, since an ozonolysis catalyst is arranged in the discharge section and it constitutes in it, it has the effectiveness which can decompose ozone harmful to the body before being discharged by the exterior of an air cleaner, and can be used for insurance.

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PRIOR ART

[Description of the Prior Art] It is devising so that single rooms, such as the sex industries, such as a snack and a karaoke box, may be sealed as much as possible from the purpose of an environment and the cure against the noise and the dirty air or the dirty noise may not be discharged to outdoor in recent years. Therefore, indoors, air will need to be defecated. Generally in sealing or the half-sealed interior of a room, the deodorant and the aromatic are conventionally used for removal of a living body smell, an alcoholic smell, a tobacco smell, saprophytic bacteria, etc. Moreover, recently, the air cleaner having the air cleaner having the ultraviolet-rays electric-discharge lamp aiming at the sterilization and deodorization by ozone or activated carbon is also used.

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TECHNICAL FIELD

[Industrial Application] This invention relates to indoor simple sterilization / deodorization structure sealed especially about amelioration of the air cleaner which used the ultraviolet-rays electric-discharge lamp.

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CLAIMS

[Claim(s)]

[Claim 1] The air cleaner characterized by having arranged the titanium metal of a high grade, having arranged air to the opening between this electric-discharge lamp and titanium metal, having arranged the ozonolysis catalyst in a sink and the discharge section of the body of a purifier, and constituting around the electric-discharge lamp which emits ultraviolet rays.

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DETAILED DESCRIPTION

[Detailed Description of the Invention]

[0001]

[Industrial Application] This invention relates to indoor simple sterilization / deodorization structure sealed especially about amelioration of the air cleaner which used the ultraviolet-rays electric-discharge lamp.

[0002]

[Description of the Prior Art] It is devising so that single rooms, such as the sex industries, such as a snack and a karaoke box, may be sealed as much as possible from the purpose of an environment and the cure against the noise and the dirty air or the dirty noise may not be discharged to outdoor in recent years. Therefore, indoors, air will need to be defecated. Generally in sealing or the half-sealed interior of a room, the deodorant and the aromatic are conventionally used for removal of a living body smell, an alcoholic smell, a tobacco smell, saprophytic bacteria, etc. Moreover, recently, the air cleaner having the air cleaner having the ultraviolet-rays electric-discharge lamp aiming at the sterilization and deodorization by ozone or activated carbon is also used.

[0003]

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[0005]

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[0006]

[Function] According to the above-mentioned air cleaner, since the oxidizing quality of titanium metal is strong and it is a high grade, the thin film of a titanium dioxide is generated on a wall front face by the oxygen in air. In addition, since an ultraviolet-rays electric-discharge lamp generates ultraviolet rays and ozone is also generated, a front face can be made to produce the thin film of a titanium dioxide easily according to an operation of ozone and titanium metal. If ultraviolet rays are irradiated by the thin film of this generated titanium dioxide, it can have a strong deodorization operation according to the photocatalyst effectiveness. By having adopted the ozone catalyst effectiveness of deodorizing while decomposing ozone furthermore and making it oxygen, it combines with the above-mentioned photocatalyst effectiveness, and there is the high deodorization effectiveness.

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[0008]

[Example] The example of this invention is explained about drawing 1 thru/or drawing 4 below. In drawing 1, the titanium metal of the high grade which 1 is a body of a purifier, and 2 is the interior of the body 1 of a purifier, and has been arranged around an ultraviolet-rays electric-discharge lamp, and 3 are ultraviolet-rays electric-discharge lamps, for example, use a 10W low-pressure mercury lamp. Moreover, this ultraviolet-rays electric-discharge lamp has made 185nm and 254nm the dominant wavelength. 4 is a fan who introduces air and defecates a sink and the polluted air for air on the surface of titanium metal. It is

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[0016]

Table [] 1 before air cleaner passage after [air cleaner passage] ----- -- 1 60 ppm 55 ppm 2 60 ppm 53 ppm 3 11 ppm 9 ppm 4 8 ppm 7 ppm [0017]

[Effect of the Invention] Since this invention was constituted so that the titanium metal of a high grade might be arranged, ultraviolet rays might be irradiated, and it might enable it to perform a photocatalyst around the electric-discharge lamp which emits ultraviolet rays and the ozone deodorization catalyst effectiveness could be acquired to it as mentioned above, it has the effectiveness that the economical sterilization / deodorization effectiveness can be acquired with easy structure.

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